ABSTRACT

In accordance with various aspects of the invention, CXCR4 agonists, including SDF-1 polypeptides and SDF-1 polypeptide homologues, may be used in reducing the rate of hematopoietic cell multiplication. Methods of the invention may comprise administration of an effective amount of an CXCR4 agonist to cells selected from the group consisting of hematopoietic stem cells and hematopoietic progenitor cells. Cells may be treated *in* vitro or in *vivo* in a patient. A therapeutically effective amount of the CXCR4 agonist may be administered to a patient in need of such treatment. Patients in need of such treatments may include, for example patients requiring bone marrow or peripheral blood stem cell transplantation.